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Preface

The innovative progress in the development of large- and small-scale parallel computing systems and their increasing availability have caused a sharp rise in interest in the scientific principles that underlie parallel computation and parallel programming. The biannual “Parallel Architectures and Languages Europe” (PARLE) conferences aim at presenting current research material on all aspects of the theory, design, and application of parallel computing systems and parallel processing. At the same time, the goal of the PARLE conferences is to provide a forum for researchers and practitioners to exchange ideas on recent developments and trends in the field of parallel computing and parallel programming. The first two conferences, PARLE '87 and PARLE '89, have succeeded in meeting this goal and made PARLE a conference that is recognized worldwide in the field of parallel computation.

PARLE '91 again offers a wealth of high-quality research material for the benefit of the scientific community. Compared to its predecessors, the scope of PARLE '91 has been broadened so as to cover the area of parallel algorithms and complexity, in addition to the central themes of parallel architectures and languages.

The proceedings of the PARLE '91 conference contain the text of all contributed papers that were selected for the programme and of the invited papers by leading experts in the field. The proceedings are presented in two volumes:

Volume I: Parallel Architectures and Algorithms

Volume II: Parallel Languages

In the Call for Papers of PARLE '91 papers were solicited describing original research in the areas of parallel architectures and systems, parallel programming, parallel languages, parallel algorithms and complexity, and applications of parallelism (including for example, neural computing). We greatly appreciate the efforts of the authors who submitted papers to this year's conference; a record number of 161 submissions were received. To maintain the high technical level of PARLE all papers went through an intensive review process. We extend our sincere thanks to the Programme Committee and to the referees who were consulted in the reviewing process, for the arduous task of selecting the programme out of these papers. Their dedication

and professionalism have greatly contributed to the technical quality of the PARLE '91 conference.

No conference of this size can be organized without the contributions of many dedicated people. As for the previous PARLE conferences, the organization of the PARLE '91 conference was again handled by the Philips Research Laboratories. A special tribute in this respect is due to Fred Robert and Frank Stoots, for their skilled and efficient handling of all organizational details of the conference over the past year.

We feel that the PARLE '91 conference has once again succeeded in bringing together a wealth of material on the theme of parallel computing. We therefore hope that these proceedings will contribute to the tradition of European research on Parallel Architectures and Languages.

Eindhoven/Utrecht
June 1991

Emile H.L. Aarts
Jan van Leeuwen
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